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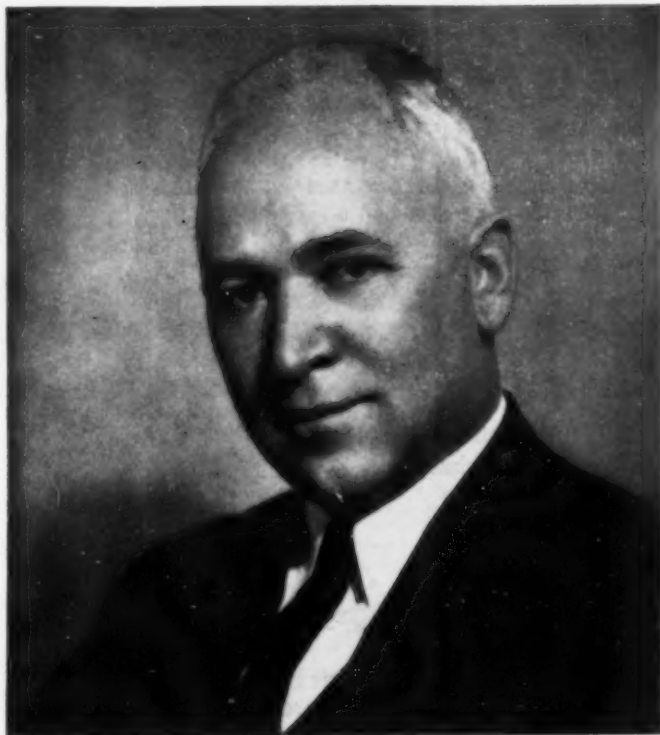
April, 1957

CHEMIST

VOLUME XXXIV



NUMBER 4



Lawrence H. Flett

*Receives Honorary AIC Membership
(See Page 121)*

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Volume XXXIV

April, 1957

Number 4

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Deadlines for The Chemist

Copy for the June issue of *The Chemist* should be in our hands by May 10th or earlier, if possible. Advertising copy for June should be received not later than May 15th.

THE AMERICAN INSTITUTE OF CHEMISTS does not necessarily endorse any of the facts or opinions advanced in articles which appear in *THE CHEMIST*.

SCHEDULED FOR FUTURE PUBLICATION

Sixteen Years of Chemical Education in China, Dr. Peter P. T. Sah

Should Consulting Engineers Advertise? (Reprint), Richard L. Moore, F.A.I.C.

Education in a Democracy—What is It? Dr. Joel H. Hildebrand, Hon. A.I.C.

Annual Meeting Reports.

The Case for Inverted Education, John E. Thompson, F.A.I.C.

Proceedings of the Annual Meeting.

Award of Honorary AIC Membership to Joel H. Hildebrand.

Now plan to attend the 34th Annual Meeting of the AIC in Akron, Ohio, May 23-24, 1957. An all-professional program and good fellowship will be provided for you. (See pages 117-118.)

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TO COME IN MAY

"Education in a Democracy—What is It?" Dr. Joel H. Hildebrand answers this question, in his own lively manner, and tells about the philosophy that is behind the present method of teaching young people. He received Honorary AIC Membership at a meeting of the Western Chapter, in Los Angeles, in March. The complete program of the Thirty-fourth Annual AIC Meeting will also be given.

We Recommend for Your Needs

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EDITORIAL

You Must Not Miss the Akron Meeting !

Dr. Ray P. Dinsmore, Hon. AIC

*Honorary Chairman, Thirty-fourth Annual Meeting of
The American Institute of Chemists*

THE Thirty-fourth Annual Meeting of THE AMERICAN INSTITUTE OF CHEMISTS will be held in the Sheraton-Mayflower Hotel in Akron, Ohio, on Thursday and Friday, May 23 and 24. This affords an unexcelled opportunity to chemists everywhere who are interested in the professional status of the chemist and chemical engineer, and generally in those problems which are associated with his professional career. For a large number of young chemists and chemical engineers in the Akron area there is given an opportunity to listen to the experts in many fields propound the results of their mature experience.

Students will be admitted for the nominal sum of \$1.00; AIC members for \$4.00 (advance reservations), and non-members for \$5.00 (advance reservations). For these moderate registration fees one can hear speakers selected from the fields of research management, research administration, executive development, consulting, personnel management, education, sociology, and industrial psychology. There will be not only prepared talks but discussions which will bring out matters of general interest and which will clarify and amplify the formal

remarks of the speakers.

We often hear the question, "What is the purpose of the AIC, and what does this society do that is not being done by the ACS and the AIChE?" If you have such a question in your mind, this is a good time to learn the answers. Our programs are getting more stimulating and closer to the heart of the professional man's problems every year. This promises to be the best to date in these respects.

At this meeting you will have a chance to meet and talk to some of the most prominent people in your profession, and more important still, people that have your professional interests at heart and welcome your ideas and your interest.

Here also you can bring your wife and give her a chance to become acquainted with the wives of other chemists and chemical engineers who have interests and viewpoints in common. We can not guarantee the weather but we can vouch for the entertainment and sociability that will be afforded to these ladies.

One of the highlights of the meeting will be the Gold Medal Banquet on Thursday evening, when the Medal will be presented to Dr. Roy C. Newton, vice president of Swift,

& Company, one of the outstanding chemists of this midwestern area, and personally a very fine gentleman. You can depend upon it that his acceptance address will be full of interest and human color.

There is no substitute for the human personality seen and heard face to face. To be sure, you can read about these events in subsequent issues of *THE CHEMIST*, but if you

want to know how people really feel and think and catch the activating spark of this meeting you must be there in person. Next year, the Annual Meeting is going to be in the West, and some of you may be unable to attend it, so this year take advantage of the opportunity and come to the Rubber Center of the World, which in itself offers many things of unique interest!

Special AIC Announcements

Program Preview Thirty-fourth Annual AIC Meeting

Date: May 23-24, 1957

Place: Sheraton-Mayflower Hotel, Akron, Ohio

Theme: The Chemist and Management Appraise Each Other

May 23 (Thursday)

10:00 a.m. **Annual Business Meeting**
Annual Reports of Officers, Committees, and Chapters.

Announcements of election of president-elect and councilors.

Old Business
New Business

12:15 p.m. **Keynote Luncheon**
Presiding: Donn F. Siddall, U. S. Stoneware Co.

Speaker: Dr. J. William Zabor, Director of Research, Wyandotte Chemicals Corp.

2:00 p.m. **First Professional Session**
Subject: The Chemist/Engineer — How is he Doing?

Presiding: Dr. Henry B. Hass, president, Sugar Research Foundation, Inc.

2:10 p.m. **Personal Characteristics and Job Success**

Dr. C. H. Elliott, Manager, Employee Relations, Socony-Mobil Oil Co., East Chicago, Ind.

2:40 p.m. **Evaluation Programs (How Do I Know How I am Doing?)**

Dr. George L. Royer, Administrative Assistant to the General Manager of the Research Division, American Cyanamid Co.

3:10 p.m. **Self-Appraisal**

Robert F. Moore, Vice President and Director, Richardson, Bellows, Henry & Co., Inc.

3:40 p.m. **How Does the Chemist's Salary Compare?**

Dr. Donald W. Collier, vice president and Director of Research, Thomas A. Edison Industries, McGraw-Edison Co.

6:00 p.m. **Reception for the Gold Medalist**

7:00 p.m. **Gold Medal Banquet**
Toastmaster: Dr. John H. Nair, AIC president.

Speaker for the Medalist, Dr. H. E. Robinson, Director of Laboratories, Swift & Company.

Presentation of the Gold Medal, Dr. Lincoln T. Work, Chairman, Committee on Medal Award, AIC.

Medal Acceptance, Dr. Roy C. Newton, Hon. AIC, Vice President, Swift & Company.

SPECIAL AIC ANNOUNCEMENTS

May 24 (Friday)

9:30 a.m. **Second Professional Session**

Subject: Management: How To Work Best with the Chemist/Engineer?
Presiding: Harold M. Olson, Harshaw Chemical Co.

9:40 a.m. **Salary Administration—An Incentive Bonus Plan.**

Dr. J. A. Aeschlimann, Vice President in Charge of Chemical Research, Hoffmann-LaRoche, Inc.

10:10 a.m. **Mobility of Professional Employees of the du Pont Company.**

Dr. Robert M. Cavanaugh, Director of Research, Explosives Dep't., E. I. du Pont de Nemours & Co.

10:40 a.m. *Speaker:* Dr. W. E. Kuhn, General Manager, Research & Technical Dep't., The Texas Company.

11:10 a.m. **The Research Chemist Looks at Research & Development Management.**

Dr. Alan L. Strand, Management Research Consultant, Booz, Allen, and Hamilton.

12:15 p.m. **Institute Luncheon**

Presiding: Dr. R. P. Dinsmore, Past President and Chairman of the Board, AIC.

Announcement of Honorary Membership Awards for the coming year.
President's Address: John H. Nair, President AIC

2:00 p.m. **Third Professional Session**

Subject: The Chemist/Engineer — How Can He Improve?

Presiding: Dr. F. W. Stavely, Director, Chemical & Physical Research Labs., Firestone Tire & Rubber Co.

2:15 p.m. **Right People for Right Jobs**

Dr. Bruce J. Miller, Assistant Manager, Research Administration, Union Carbide & Carbon Corp.

2:45 p.m. **Common Sense Cuts Research Costs.**

S. C. Fulton, Manager, Executive Development, Esso Research and Engineering Co.

3:15 p.m. **The Destructive Side of Creativity.**

Dr. Herbert A. Shepard, Assistant Professor of Sociology, Massachusetts Institute of Technology

Schedule of AIC Mailings

The program of the 1957 Annual Meeting will be mailed to all AIC members about April 20th, together with a hotel reservation card and an advance registration form. Fellows and Members of the AIC will also be sent an election ballot for the office of president-elect and three councilors. Ballots must be returned before May 10th to be counted. To facilitate the work of the Arrangements Committee, please send in Annual Meeting reservations promptly. Annual Meeting programs are also available to non-members of the AIC, and will be sent to them on request to the Secretary, The American Institute of Chemists, 60 E. 42nd St., New York 17, N.Y.

Washington Chapter Honors Milton Harris

The Washington AIC Chapter will present its Honor Award for 1957 to Dr. Milton Harris, F.A.I.C., director of research of The Gillette Company, and founder of the Harris Research Laboratories, at its April 23rd meeting at the Windsor Park Hotel, Washington, D.C.

New York Chapter To Present Honor Scroll to C. F. Rassweiler

The New York Chapter will present its 1957 Honor Scroll to Dr. C. F. Rassweiler, F.A.I.C., president-elect of the American Chemical Society and vice chairman of the

Board, Johns-Manville Corporation, at the Chapter's annual dinner, June 6, 1957, at the Hotel Commodore, New York, N.Y.

Invitation

The New Jersey Chapter invites AIC members, their wives, and guests, to attend its Honors Meeting on Friday, May 3, 1957, at the Military Park Hotel, Newark, N.J. Honor Scrolls will be presented to Dr. H. W. Mackinney, Leon R. Joslin and Chester A. Amick, for their work in helping to secure new science facilities for the State Teachers College in Montclair, N.J. The speaker will be Dr. Detlev W. Bronk, president, National Academy of Sciences and of Rockefeller Institute. For reservations: Dr. F. A. Lowenheim, P.O. Box 471, Rahway, N.J. (FULTon 1-3000).

Honored: Dr. C. Harold Fisher, F.A.I.C., chief of the U.S. Department of Agriculture's Southern Utilization Research Branch, New Orleans, La., who received the Southern Chemist Award of the American Chemical Society at its meeting in Memphis. He was cited for his important studies on such crops as cotton, sweet potatoes, rice and peanuts.

Elected: As vice president in charge of research and development of The Bon Ami Company, Dr. Daniel H. Terry, F.A.I.C. He has been research director since 1952.

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Pursuit of Invention

Lawrence H. Flett, Hon. AIC

*Consultant, National Aniline Division, Allied Chemical & Dye Corporation.
Former president of The American Institute of Chemists.*

(Acceptance address when the author received Honorary AIC Membership,
March 11, 1957)

THE AMERICAN INSTITUTE OF CHEMISTS is an organization devoted to the profession rather than the science of chemistry. Its interest is in chemists rather than chemicals. Since it is the only such organization in this country, have no doubt about it, the President of the INSTITUTE is the man to whom chemists turn whenever they are confronted by what seems to be insurmountable problems. The President of the INSTITUTE is privileged to save many a broken career and many a tottering reputation. Withal he must learn much about chemists, their ambitions, their hopes and their fears.

The problems of the chemical profession change; as old ones fade away, new ones present themselves. When the INSTITUTE was formed, the all important problem was professional status. The chemist was just a "guy named Joe." Now the science is completely changed; the chemist has achieved recognition. An important problem of today is a shortage of technical personnel. Perhaps you would like to look at the problem through the eyes of a Past President who looks at the problem from the chemist's side up, as well as from the business side down.

In far too few words for such an

important subject, let us define what the shortage of technical help in the chemical field means, how serious it is, what caused it, what can be done about it:

The man who says he can't find the chemists he needs will be the first to admit that he could easily hire a hundred chemists, but he is quick to add that they are not the kind of chemists he needs. In that statement, you have the crux of the present manpower shortage.

Men with chemical education find their way into every part of the important chemical business. They are found as executives, engineers, accountants, salesmen, purchasing agents and in many other functions not ordinarily associated with chemistry. All of these people serve to keep the wheels of industry turning. There is no shortage of such people, and if there were, many of the positions could be filled with people who do not have degrees in chemistry, as long as capable chemists were available in the organization. No chemical company has had to close its factories because chemists could not be found.

Any discussion of the shortage of chemists refers to one type of chemist, the inventor, the creative genius.

This is a dangerous shortage. It is a problem far more serious to the future of the country than the many difficult problems engaging the government and industry today.

All the modern rewards of science which have gone so far to advance our standard of living, the miracles of chemistry which have made possible modern automobiles, household appliances, new fabrics, plastics, are products of invention. Our very existence depends on defenses made possible by chemists and other technical men.

In the eyes of any President of the INSTITUTE, the importance of invention has never received proper emphasis. Certainly no one would deny that our modern economy depends on it. It can bring satisfying prosperity and when it fails, there can be devastating depression. The inventor is an indispensable member of the industrial team.

The problems of the future which the inventor must solve are much more serious than those of the past. The shortage of water, and the production of food for the growing population seem to be insurmountable problems. Dr. Fogler of Allied's Nitrogen Division, in his recent Paris speech, pointed out the seriousness of the food problems in this world where one-hundred-thousand more people were at the dinner table today than were there yesterday. That address is recommended reading for every thoughtful individual. The

food problem is a staggering one and, without science it would already be upon us.

The world does not share our American prosperity. There is starvation in many areas today and yet there is very little in the American economy that is not common knowledge. If there were enough technical men in the world, the prosperity enjoyed here could be brought to those places where misery and starvation now exist. Most international problems would disappear in a well-fed, happy world.

There are many important reasons for the shortage of chemists of the creative group. Three of them call for special consideration.

(1) The unparalleled expansion of the chemical industry has taken place without the necessary expansion of educational facilities. Our present shortage of technical geniuses comes in part from the lack of educational facilities twenty years ago. In reaching for a higher standard of living, the American public has forgotten the education which made our present pleasant standard possible.

(2) Today even the limited educational facilities for chemists are not being fully used. Higher education in science has lost much of its lure, and its rewards look small in a society where high school graduates earn so much with so little work and no study.

(3) Chemists are being diverted,

PURSUIT OF INVENTION

most willingly and most usefully, to other work. The modern graduate seeks to avoid a laboratory career in favor of other attractive opportunities as executives or as creating members of the sales group.

Most serious of these reasons is the lack of appeal which chemistry has for youth. Seeking the reason why young people have failed to enthuse over a creative chemical career is a complicated problem. Three phases of this will be discussed.

Simplest to discuss is the matter of reward to the creative research worker. Let us agree that it is probably impractical to give creative genius tangible reward in amount comparable to the ultimate value which that genius may create. But genius does not insist on—and seldom expects—such reward. Although scientific salaries have always tended to be low, those with creative instincts are anxious to do research, if the proper facilities are made available. But the young student, not yet fired with this inner compulsion, is likely to look with disfavor on the relatively fewer opportunities for high rewards in research as in other areas of business, even in the chemical business.

It does not take long with a pencil and paper to show that it may take many years to retrieve the money spent on education, and the money which might have been earned while studying long hours and years at a university.

Certainly salary is one of the lesser reasons why modern chemistry has lost the appeal to youth which it had twenty years ago when half the boys in a secondary school class might indicate their desire to be a chemist.

Another possible reason is the complexity of modern chemistry. A few years back most chemists worked with things which affected their five senses. The color chemist loved the colors which he saw with his two eyes; the perfume chemist loved his odors; the textile chemist loved the hand of the goods. Taste was a standard test of the research laboratory. The chemist worked with his hands and his wonders were real and material. While much of this still goes on, the modern picture of a chemist as you see it portrayed in the press, shows a man sitting at a desk completely surrounded by panels of lights and dials, as shut in as a bird in a cage, a prisoner of his science. This is not to say science is less interesting. On the contrary, it is far more fascinating as new worlds are opened up. Wonders of a new world may be unfolding before the man who sits at the instrument panel, but to youth, what attraction can there be in instruments to look at things that the eyes can not see; recording noises that the ear can not hear; touching chemicals with hands of iron that cannot feel, chemicals whose radiation would destroy those who dared handle them with their bare hands.

How can he be brought to understand such things? Is it a costly oversight on our part not to have spent time to bring the miracles of modern science down to the childhood toys so that the youth may be given an insight into the new world so real and so intriguing that he will become determined to pursue science?

Another factor which turns the modern youth from chemistry is the long and constant study required to keep pace with the growing chemical knowledge. In an era when Americans are working a thirty-five or forty-hour week and talking of a thirty-hour week, the chemist who is a true scientist finds his forty-hour week becoming an eighty-hour week. Creative research is done only by those who study, work, think, and dream.

These are but three of the many problems, any one of which might turn bright young men away from science.

The shortage of chemists is with us. It will not be solved next year, nor will it disappear through the professional career of those here. Many things are being done in a small way to try to correct this dangerous situation, and let it be said, categorically, that anything which is done, even though it influence but one man, is a contribution to the future. But no present plan strikes a broadside at the foundation of the trouble.

Since the problem is upon us, much consideration has already been given to what might be done about it. The only immediate approach to the problem is that of making better use of the chemists which are available. The present average efficiency of research is so very low that a great deal can be accomplished in the matter of extending our present manpower. This is of the greatest importance because it concerns our present needs. There are many ways to increase the accomplishments of chemists already in the laboratories or other groups. Here are five to start with:

(1) The whole era of research carried out by one man has gone. Research today must be carried on by groups of individuals with a highly specialized education, working and studying in a very narrow field but who, as a group, can bring more knowledge to bear with greater success and with more inventive genius to meet those staggering problems which we see before us. This will reduce the study load on each man and at the same time, more progress can be made with fewer chemists.

(2) Every effort should be made to put creative chemists in positions where their inventive genius can do the most good. Chemists should be used only for work which requires a chemical education.

(3) A proper relationship should be made between salaries and cost

PURSUIT OF INVENTION

of education. Particular consideration should be given by industry to adjusting whatever inequities have developed in recent years between the salaries paid older employees and those obtained by newer men in view of recent high starting rates. Such adjustments should be considered not merely on the basis of the length of service but on the contributions made to the employer's growth and success.

(4) In order to make certain that chemists receive proper rewards for their work and in order to save the inventive chemist from the continual frustrations and even abuses which seem to be the characteristic reward of an inventor, corporations should undertake seriously the problems of measuring the accomplishments of their chemists. This is not as easy as measuring the accomplishments of a salesman in dollar sales, but it can be done and should be done at once by all corporations because it is of critical importance.

(5) Steps should be taken to make the chemist's work more interesting through meetings and conferences. Steps should be taken to ease the chemist's problem of keeping abreast of new developments.

The shortage of technical man power is not limited to the chemical profession. Many attempts are being made to avoid this shortage. Probably every section of the American Chemical Society has a committee;

THE AMERICAN INSTITUTE OF CHEMISTS has a committee; the Manufacturing Chemists' Association is much concerned.

The important and neglected part of the problem is making better use of the chemists we have. The other public-spirited part of the problem which is engaging so many people is that of encouraging youth toward a scientific career, the benefits from which will be shared by our children's children.

All the steps taken by all the organizations are helpful but the shortage of chemists will not be solved by simple means. It cannot be solved by any single chemist. It cannot be solved by technical or scientific societies. It can be solved only by the organized work of the professional groups and in the field of chemistry. The INSTITUTE is such a group, and it should assume responsibility and leadership. It is urgent that more creative chemists in government and industry should join the pursuit of invention.

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Introduction to Lawrence H. Flett

Glen B. Miller

President, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y.

(Presented when Mr. Flett received Honorary Membership, March 11, 1957, at a meeting of the New York AIC Chapter, New York, N.Y.)

DURING his thirty-five year career at Allied Chemical, "Mique" Flett has been cited as a distinguished chemist on many occasions and has received many awards . . .

When I went to work for National Aniline at Buffalo, the day after I got out of college, I found Mique already there. He and the group of brilliant young chemists with whom he was associated gave me a warm welcome at the plant, and away from the plant helped me find a good place to live, and taught me bridge, poker and other activities. This was in the days when we had not yet been blessed with the joys of matrimony, and on one occasion we decided to spend the entire weekend on a fishing trip. We left early Saturday morning, armed with detailed instructions from one of our friends as to where we were certain to find a lot of fish. After surmounting many difficulties, we finally arrived at the place to which our good friend had sent us. It was the Caledonia Fish Hatchery! We say that when you have friends like that, you don't need any enemies.

It was fortunate for us that Lawrence Flett, a gifted MIT graduate, came to lend his talents to the work

at National Aniline, an organization highly significant in developing an American synthetic dye industry. At the Buffalo plant, in 1928, Mique became group leader in guiding the research program on azo dyes. By the mid-thirties his efforts had gradually become directed toward the broader field of synthetic organics and he became director of exploratory research.

In the early forties came a period of specialized interest for him, in the detergent field. Mique developed the first commercial synthetic detergent prepared from petroleum, and I think it is generally accepted that the growth of synthetic detergents in the United States is largely based on work which he pioneered.

Mr. Flett joined the New York headquarters of our National Aniline Division in 1944, where he was director of the New Products Department until his retirement a short time ago. Although he no longer works with us from day to day, we frequently still have the advantage of his advice as a consultant.

Aside from his many notable contributions to the chemical field (he holds about 75 patents), Mr. Flett is the author of a number of publi-

INTRODUCTION . . .

cations and books. It is remarkable that besides all this he is usually being promoted for president or committee chairman of some top-notch professional organization. Incidentally, he always wins the election! For many years, his unique characteristics—a combination of professional standing, enthusiasm and interest in people—has made Mique Flett a kind of emissary of good will for Allied

Chemical & Dye Corporation.

Personally, I am delighted to speak for his many friends and well-wishers at Allied. It is a chance for us to express appreciation for Lawrence Flett's untiring efforts on behalf of our company and the chemical industry in general. We all know that Honorary Membership in THE AMERICAN INSTITUTE OF CHEMISTS is a highly deserved recognition.

A Chemist's Chemist

James M. Crowe

Executive Editor, American Chemical Society Applied Publications, 1155 16th St., N.W., Washington 6, D.C.

(Remarks on the occasion of the award of Honorary Membership by THE AMERICAN INSTITUTE OF CHEMISTS to Lawrence H. Flett, New York, N.Y., March 11, 1957.)

BACK in 1948 you first elected "Mique" Flett as president of THE AMERICAN INSTITUTE OF CHEMISTS. In reporting that event at the time, we did a cover story on him in *Chemical & Engineering News*. I quote the first two paragraphs of that story, written nearly ten years ago:

"There are chemists who take their research problems in small day-to-day doses. Over the years their contribution is considerable and much of it could figure in a major discovery.

"There are other chemists who seem to delight in taking on the really big, tough, and unsolvable tasks, often in the face of overwhelming odds, and solving them. We like to think of Lawrence Flett as that kind of chemist, because his initiative, his brilliant and determined efforts, played a leading part in the successful pro-

duction of synthetic detergents from petroleum and found a better way to manufacture azo dyestuffs."

Mique's contributions and services to the American Chemical Society have been many and varied. Briefly, the ACS as an organization has gained tremendously through the active membership of men like Lawrence Flett. Without their voluntary efforts of many years, the ACS would not have grown to its membership of nearly 80,000 and an annual budget of six-million dollars. Nor would the ACS be able to render the many services it performs for the individual chemist and chemical engineer; for science, education and industry; in fact for the general

welfare of the country, without the devotion to their profession of men like Flett.

Mique is a chemist's chemist. This means that he has a profound sense of obligation to his profession. Once you realize this dominant characteristic, it is comparatively easy then to understand why he has been so active in many scientific, technical, and professional organizations.

Mique was a very productive worker for the Western New York Section of the Society. Several times he has been a councillor, representing either a local section or a division. He was vice chairman of the Western New York Section at the time he was transferred from the Buffalo Research Laboratories of the National Aniline Division of Allied Chemical & Dye Corporation to the company's New York headquarters. He is a recipient of the Schoellkopf Medal, presented annually by the Western New York Section to a distinguished chemist working in the Buffalo-Niagara Falls area.

Mique was one of the real spark plugs in the formation of the ACS Division of Chemical Marketing and Economics. Indeed, without his drive, it is quite possible that this now very active and prosperous division would not have been formed. He served as its chairman in 1955-56, and for several years was a member of its executive committee.

In the past few years we have had

separate Editorial Advisory Boards for *Chemical & Engineering News* and *Industrial & Engineering Chemistry*. However, for many years one board served both publications. Before the split, Mique served on this Board and took the responsibility seriously. Many, many practical suggestions came from him for improvement. Sometimes Mique is very direct; at other times his approach is indirect but usually very effective. For this reason, not all of his good deeds come readily to light. We who are in a position to observe some of his work say that it would be difficult to give him all the credit that he so richly deserves for his efforts on behalf of the ACS.

He is a great favorite with every member of the editorial staff of the applied publications. He compliments them on the nice things they do, yet does not hesitate to criticize when he feels something can be done better. When he speaks, you know you are getting his true feelings. It is very gratifying to work with such a person. Dr. Walter Murphy, Hon. AIC, editorial director of ACS Applied Publications, and our whole editorial staff feel that out of our associations with Mique have come some of the best innovations and improvements in our publications.

Although his activities on behalf of the ACS have been many, Mique Flett has ranged much more widely than that. He is a past president of

A CHEMIST'S CHEMIST

the AIC and continues to be a contributing editor to *THE CHEMIST*.

He has always had a strong interest in the marketing and development aspects of the chemical profession and industry. His work in these areas has been given recognition by his election as president of the Chemical Market Research Association and vice president of the Commercial Chemical Development Association.

Mique has lent his time and talent to the Gordon Research Conferences and the American Association of Soap and Glycerine Producers. He is a member of the advisory committee for the Gordon Research Conferences and several years ago was a member of the six-man management committee that reorganized them at New London, N.H., where they have been very successful.

The Chemists' Club, New York, N.Y., has also benefitted from Mique's participation. He serves on its board of trustees. Somehow the Club seems brighter, more cheerful, and more friendly when he is there.

I must mention the most recent organization that is receiving Mique's concentrated attention. He has gone international on us and is now serving his second term as president of the American Section of the *Societe de Chimie Industrielle*. A few months ago he helped organize a program for the parent body of this group in Paris and came back with much

enthusiasm about the opportunities for building this international organization of the chemical profession.

I have failed to mention many of the contributions that this warm-hearted and energetic friend has made to the growth and effectiveness of our professional and technical societies. Let me finish by paraphrasing from a version of a professional man's oath* that I recently read:

Mique Flett as a chemist, has a deep, abiding respect and faith in the ideals of his chosen profession; he believes that membership in it entails the most solemn obligations—obligations that he is eager and earnest to fill; he believes that as a member of this profession, he has a vital and personal responsibility to act for the benefit of mankind, to render usable nature's vast material reservoirs and her latent energies.

As a chemist: He believes that the duties and the responsibilities of the profession rest more heavily upon him because of the traditions, the heritage, and the accumulated experience passed down to him by members of the same profession in earlier generations, and he believes he should dedicate his efforts to the furtherance and development of these ideals and the dissemination of our philosophy and practice to younger men of the profession, that it may warrant a high place in the field of human endeavor.

As a chemist: He believes in common with all men, that he should strive for the common good, interest himself in the service of humanity, and render to his fellow man and to his community without thought of material recompense such service as will be for the greatest public good.

As a chemist: He further believes

*Based on engineer's oath composed by Allan R. Cullimore, former president, Newark College of Engineering.

his profession requires in its very nature particular sensitivity to moral obligations and to the broadest human welfare and progress, that our world, with its material things and things of the mind and of the spirit, may be a better place to live in.

All these things does Mique Flett truly believe and to these principles has he dedicated himself.

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Lawrence Flett — A Personal Appreciation

James W. Perry, F.A.I.C.

Center for Documentation and Communication Research, Western Reserve University, Cleveland, Ohio.

(Presented when Honorary AIC Membership was awarded to Mr. Flett, March 11, 1957, at a meeting of the New York AIC Chapter, N. Y., N. Y.)

STARTING with 1933, "Mique" Flett was first my boss at National Aniline and quickly became a helpful councillor and personal friend. My debt of gratitude to Mique is extensive and diverse.

First, Mique taught me what research really is. Not the performance of experiments, not filling data books with observational notes, no matter how valid; rather the solution of problems, or in an industrial chemical context, the development of economically advantageous products and processes.

Second, Mique patiently made me realize how important recorded information is in planning, conducting, evaluating and exploiting research and development programs. In making me see that the library and the laboratory must work together as partners, Mique opened my eyes to

an area in which experimental research was conspicuous by its absence. I refer to the analysis, processing, searching, correlating and utilization of recorded knowledge.

And so Mique, by precept and example, directed me into a field of professional activity that has provided me with unusual satisfaction. But opening this field up for me is far from all of the story. From Mique I also learned that the way of the innovator is strewn with more thorns than roses. From Mique I learned that it is a contradiction in terms to speak of an innovator without unending persistence and continuing courage. Further, he taught me that the better mouse-trap fable is true only up to the point of building a better mouse-trap. If we do no more than build the mouse-trap, we have only provided the basis for

practical accomplishment. We cannot expect the world to beat a path to our door. Being an innovator also involves selling with all its setbacks and disappointments. On the positive side the innovator must rejoice when others seize his ideas and claim the credit for them. For then the innovator has put the proposition over—in a word he has truly innovated. On the negative side, the innovator must understand how to meet indifference with persistence, disappointment with fortitude and misrepresentation with an understanding of human limitations and the fears that they engender. These

lessons that Mique taught me are in my opinion, the most valuable of all. Without these lessons, achievement at the technical level is almost certain to remain barren.

I cannot close on a somber note without danger of leaving a false impression. For Mique's sturdy character, his penetrating insight both scientific and psychological are blended with a marvelous sense of humor. Mique is rarely at a loss for a humorous and apt illustration to make his point. Without such tools how could he have made anything out of a green kid from North Carolina?

Presentation of Honorary Membership

THE presentation of Honorary Membership in THE AMERICAN INSTITUTE OF CHEMISTS to Lawrence H. Flett, consultant, National Aniline Division, Allied Chemical & Dye Corporation, New York, N.Y., and AIC president from 1948 to 1952, was made at a meeting of the New York Chapter, held March 11, 1957, at the Hotel Commodore, New York, N.Y. Preceding the meeting, a reception was held for Mr. Flett through the courtesy of Allied Chemical & Dye Corporation.

Dr. Murray Berdick of Evans Research & Development Corporation, and chairman of the New York Chapter, presided at the meeting.

Mr. Flett was introduced by Glen B. Miller, president of Allied Chemical and Dye Corporation; James W. Perry, F.A.I.C., director of the Center for Documentation and Communication Research, Western Reserve University, Cleveland, Ohio, and James M. Crowe, executive editor of the American Chemical Society's Applied Publications.

Honorary Membership was presented by John H. Nair, AIC president. In accepting the award, Mr. Flett spoke on "Pursuit of Invention." (See preceding pages.)

The citation on the certificate of Honorary Membership reads:



Left to Right: James M. Crowe, James W. Perry, Mr. Flett, Mr. Nair, Glen B. Miller, and Dr. Murray Berdick.

To

Lawrence H. Flett

Outstanding leader in development in the chemical industry, who has devoted his lifetime to understanding and sympathetic human relations with his professional associates, and has un-

selfishly given a large part of his efforts to the furtherance of the profession of chemists, not only as an individual with individuals, but also through responsible positions in many professional organizations both national and international.

Technical Career Conference:

To be held June 8-14, 1957, in Chicago, Ill., sponsored by the Technical Career Council. For information: Marcus W. Hinson, The Technical Career Council, 19 S. LaSalle St., Chicago 3, Ill.

Elected: By the New York Academy of Sciences as Fellows, the following Fellows of the AIC: Robert Ginell, of Brooklyn College; Dr. John A. King of Warner-Chilcott Laboratories, and Dr. Earl T. McBee of Purdue University.

Announced: by Nopco Chemical Co. Harrison, N.J., the appointment of Michael Sandor as technical manager of the newly-formed Metal Processing Chemicals Department.

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The Relationship of Scientific Manpower to the Future Economic Prosperity and Security of the Nation

Dr. D. H. Dawson

Vice President, E. I. du Pont de Nemours & Co., Wilmington 98, Delaware
(Presented at the Manpower Symposium held by the Philadelphia Sections of The American Chemical Society, the American Institute of Chemical Engineers, the Electrochemical Society, and the Pennsylvania Chapter of The American Institute of Chemists, Philadelphia, Pa., December 6, 1956.)

THE shortage, present and future, of scientific manpower, threatens to become the most widely discussed topic of our day. One may wonder whether all of us, faced with it in day to day activities, are not talking too much and doing too little. If we are, it is because the problems appear so difficult of resolution and to require action on so broad a front that no one of the many groups concerned with it can effectively grapple with all its manifold aspects.

My assignment is to consider the magnitude of the problem with particular emphasis on its impact on the future economic health and security of this country.

We need only look at the changes which have occurred in the economy of our country in our lifetime to be impressed with the extraordinary extent of the progress which has been achieved. Much of this progress can be attributed to our abundant natural resources; much can be attributed to the inherent vigor of our

people; and most of all, perhaps, to the atmosphere of free enterprise and the incentives for individual accomplishment which have been guaranteed by a republican form of government. But we must also realize that these accomplishments have been due to our ability to achieve, through advancing technology, the utmost from our large resources and our vigorous people.

Thus, we need only look at the growth of any of a half dozen industries to be struck by our extraordinary progress—more particularly when we compare the relative lack of progress achieved in other parts of the world. The growth of the automotive industry, following the application of sound engineering methods of fabrication; the extraordinary use which we have made of our reserves of petroleum, are but two examples. The chemical industry was forty years ago almost non-existent, whereas today it has grown, largely through the application of scientific and engineering skills, to be

a major factor in the country's economy.

Out of these, and many other developments, have accrued a growth in total production and a standard of living far in excess of any previously or elsewhere obtained. For the future, we are dedicated to continued growth, still higher standards of living and increasing leisure for all our people. These must be obtained in the future in the face of a relatively limited growth of some and rapid depletion of many of our natural resources, of sharply increasing population, and of the need for us simultaneously to lend support and help to a considerable portion of the remainder of the world.

If continued growth is to be realized, it would seem that it can be accomplished only through increasing effectiveness in our utilization of manpower and our natural resources of energy and food. This, in turn, will come about only through the more widespread and more intensive application of scientific and engineering skills, required both to maintain our highly industrialized economy and through research and development to produce still better and more effective utilization of the manpower and resources available to us.

Certain areas of concern for the immediate and more distant future are quite evident. Despite our growing population, increased industrialization and higher living standards

will inevitably result in manpower shortages unless means are devised through instrumentation and mechanization for greater output per man hour.

We are still behind in solving the problems of transport and localized overcrowding which have already developed from our highly industrialized economy and which can not do otherwise but become more acute in the face of increased industrialization and higher living standards.

We need only look toward the foreseeable future, if anything in the future really is foreseeable. By 1976, only twenty years from now, we will have a population of 216-million in the United States. If trends of the last eighty years continue, this population will demand twice the quantity of goods and services available today. Yet due to the increasing proportion of the young people and the aged in this population, our work force twenty years hence will be only 30 per cent larger than it is today.


This means that at the present rate of output, the nation would be able to produce only 70 per cent of the goods and services which the 1976 population will demand. To meet this labor shortage, we would have three choices. We could return to the practice of our ancestors and work eleven and one-half hours a day, or 57 hours a week; we could attempt to enlarge the labor force by recruiting more students, retired per-

THE RELATIONSHIP . . .

sons and housewives; or we could increase individual output. Obviously the third is the only desirable choice, but it will require scientific brains to point the way, and enormous investment of capital for the tools and machines which will be required for this stepped-up productivity. For the past ten years, our productivity per man-hour has increased 3 per cent per year. This improvement must be maintained, and even increased, if we are to meet the needs we face and the further growth for which we hope.

In the more distant future, we can surely foresee the decreasing availability of our large stores of liquid and gaseous fuels. It has been estimated that the United States may pass through the peak of natural gas production as early as 1965. You can even foresee at a more distant time limitations in our solid fuels and the inevitable need to turn to nuclear energy and solar energy as our largest available resources. Their utilization will present scientific and industrial problems larger than any we have heretofore faced.

We sometimes forget that not only are we chewing up our best and most easily available natural resources at a fantastic rate, but that this rate of consumption is accelerating. Every improvement in living standards, every increase in population, and every advance in industrialization of the backward countries imposes a heavier demand for the



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raw materials which are available.

Between 1885 and 1915, pig iron production in the United States doubled every twelve years. Since 1935, production has been doubling every ten years. Yet domestic reserves of iron ore are dwindling rapidly, and since 1935, an increasing proportion has required treatment in order to raise the iron concentration to the high levels required by the steel mills. Similarly, ores that averaged about 5 per cent of copper were being processed in 1900, but ore containing as little as six-tenths of 1 per cent copper is being consumed today. The rate of depletion will be even faster with the growth of world demand through the industrialization of vast land areas of Asia and Africa now practicing a simple agricultural economy.

Even our food supply, although entirely adequate in this country today and probably for many years to come, will at some time, perhaps before another lifetime has passed, require methods entirely different from those utilized today. As advancing

communications make all the world one, the problem will assume greater importance. Even today the world as a whole has a food deficit. More than one-half of the world's population now receives hardly enough food to maintain life at a minimum level, another one-fourth is undernourished. The rate of food production has increased only 10 to 15 per cent in the past 40 years, while population has increased 30 per cent. These shortages will not be ameliorated without considerable effort, and we will not be able to avoid assuming an increasing share of that responsibility.

In each of these, and in many other areas, the solutions to the problems will require not only the maintenance of our present high level of technology, but research and development on an increasingly broad and rapid scale. And when these developments have been made, a still higher level of technical and scientific skills will be required simply to keep them running.

Only thereby can we hope to continue to obtain the further increase in living standards which our people expect and demand, and still support, to the required extent, other less progressive peoples in the world today.

On the question of security, I must perforce speak as a layman. But it has been said by others, and it seems abundantly clear, that our security

depends first on the maintenance of a high degree of immediately available protective facilities; second, on the continued development of equitable relations with other nations, involving probably some measure of support to them; and third, and most important, on the continued development of the highest degree of varied industrialization and technical and scientific skills required to maintain and expand it as required.

That our protective facilities in today's world are dependent largely on advancing technology is abundantly clear. One need only look at the weapons of today and compare them with those available only ten years ago to be impressed with the extent of our dependence on extremely complicated mechanisms hardly dreamed of a decade ago. The processing required to produce plutonium as compared with that involved in making TNT is perhaps a fair measure of the complications and the magnitude of industrial effort involved. It has recently been reported in the press that a single launching site for guided missiles will cost a hundred-million dollars, and presumably millions of man-hours of effort. As speed increases, the complexity of our mechanisms rises exponentially, and with it the technical effort required for their design and construction.

The matter of maintaining equitable relations with other nations is one which is properly beyond the

sphere of a technician, and I will pass it by, except to say that it seems evident that it cannot be done without an extremely healthy economy in this country, which is dependent, increasingly, on advancing technology and industrialization.

Most important to our security, certainly, is the maintenance of a highly geared industrial economy, supported by the necessary scientific and technological skills required to maintain it and to allow rapid modification and expansion of it as required by the changing world scene. Surely that was the major contribution of this country in the latest conflagration and is the most effective bar to any future repetition of it.

It follows that this nation's security in the last analysis is obtainable only with and through a highly active industrialized economy which brings with it what we call prosperity. Certainly we could have prosperity without security, but it seems inconceivable that we could have security without prosperity. And we could not hope to have either without continued advances in industrialization and technology and without the scientific brainpower to develop it and, once obtained, to maintain and operate it.

Finally, the sociological aspect of this increasingly scientific era deserves at least brief consideration. Advancing technology has had a profound effect upon the nature of our

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work force as well as the nature of our work. In a world of automatic hoists and fork-lift trucks there is decreasing need for the hod-carrier. One-fourth of our workers were common laborers in 1910, but only one-tenth were so engaged in 1950. The common laborer is becoming skilled and the skilled worker is becoming a technician to meet the requirements of modern industry.

The effect is to intensify the demand for people with a scientific education. In the du Pont Company, for example, the ratio of technically-trained people to all employees was one to 15 in 1940; today it is one to 10. We have one engineer for every 16 employees today against one for 29 in 1940. Yet it is likely that this year we will be able to recruit only about three-fourths of the new chemists and engineers which we need for replacement and growth.

This would seem to be about the point where our discussion started. As to the problem of how the required increases in scientific and engineering brainpower and manpower

are to be achieved in face of the increasing spread between our requirements and their availability, I disown any pretense toward having developed solutions to this difficult problem. But, the burdens of solution reside in at least two areas:

First, industry itself must increasingly seek out the means of making more effective use of what is available to it. Something may be accomplished by greater specialization and the delegation of lower grade jobs to more available lower grade skills. Something may be accomplished by even more intensive use of mechanical devices, for computational assignments, for example. Something may be accomplished by better support of our educational institutions in conducting the basic research for which we so largely depend on them. Something may be accomplished by still other devices which have been suggested. It is, nevertheless, incumbent upon industry to seek the best devices which it can design for more effective use of available scientific manpower. In this regard, industry is sometimes accused of ineffective utilization by the assignment of engineers and scientists to non-technical jobs. Although I would not deny that this has been and is still being done, I would like to observe that with the increasing technical complications in most industries, and certainly in the chemical industry, the technical skills conferred by scien-

tific or engineering education are becoming increasingly required in all phases of industry's work. With each increase in technical complexity, we approach more closely to a requirement for technical skills in the people who are administering the whole and each of its parts.

The second area in which solutions must be sought, and unquestionably the more important one, is that of our educational system. In our colleges we certainly are developing inadequacies in physical plants as a result of growing use and delayed modernization. Even more important is the growing shortage of people both able and willing to teach, and the inability of our colleges to compete with industry in view of the over-all shortages. The more basic weakness may be in our secondary schools and the departures which they are alleged to have made in recent years from the more difficult training areas of mathematics and the sciences. Here, perhaps more than in any other area, we must seek correctives of a very thoroughgoing sort which are not easily apparent, particularly since we must require a greater output of technical skills without too great a sacrifice in broad training in the arts and humanities.

If we can generate even a few ideas and even partial solutions to our dilemma, the future of the country's prosperity and security will, to that extent, be safe-guarded.



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AIC Activities

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Dr. Harris

To Receive Honor Scroll

The Washington Chapter announces that its Honor Award for 1957 is to be presented to Dr. Milton Harris, F.A.I.C.,

director of research of The Gillette Company, at the annual banquet to be held April 23rd at the Windsor Park Hotel. Dr. Harris is cited for his outstanding services in advancing the professional status of chemistry, and for his leadership in research in the chemistry of textiles and high polymers.

AIC President John H. Nair will present the Scroll. Dr. Walter J. Murphy, Hon. AIC, editorial director for the American Chemical Society, will speak. Members are urged to bring their wives and other guests. (Cocktails, courtesy of Harris Research Laboratories, 6:15 p.m. Dinner (\$4.00) at 8:00 p.m.) Reserva-

tions should be made with Dr. Carl J. Wessel, National Research Council, 2101 Constitution Ave., Washington 25, D.C., Telephone: EXecutive 3-8100, Ext. 356.

Professional Status

The February meeting of the Washington Chapter featured three speakers: Dr. Richard L. Kenyon, F.A.I.C., spoke of the broad charter of the American Chemical Society. Within this charter, ACS engages in many activities, some of which effectively promote the advancement of the profession of chemists and chemical engineers. The ACS has no code of ethics, preferring to rely upon the judgment of a man by his peers as a means of evaluating his performance and behavior. It was shown that not only does the ACS try to develop professional attitudes among chemists by sponsoring or administering awards, publicizing achievements, and generally according recognition within chemical circles, but it also encourages them to undertake outside activities in their respective communities so that they are contributing members of society.

Mr. Joseph Gillman related the objectives of the American Institute of Chemical Engineers in improving professional status, pointing out that they are quite similar in purpose to those of both the AIC and ACS. AIChE collaborates closely with engineering societies and other professions, and the combined efforts of all are therefore of considerable import. He described a six-point program for development of young engineers, recently adopted at an AIChE conference in Cincinnati. The program is founded on the premise that industry must provide the climate for development of the youngsters, but that the final responsibility for progress lies with the individual. It is held that encouragement of the individual in his efforts to succeed merits the cooperation of educational institutions, and the scientific societies, as well as industry. Mr. Gillman also expressed the view that what each man makes of himself as a chemist, an engineer, and professional man, is what in the aggregate determines the reputation of the profession.

Although the efforts of all three societies overlap in purpose to some extent,

it was the consensus (1) That the AIC should continue in its endeavors to achieve its objectives; (2) That the AIC can be most effective in the local Chapters where the very fact of the relatively few numbers results in a more personal feeling of responsibility; (3) That in AIC forums, committees, and formal meetings, the chapters can develop majority opinions concerning issues of the day affecting chemists. The AIC can then take a public stand whenever appropriate; (4) That even on controversial issues for which no concerted opinion can be formed, chemists need to discuss and probe the merits of the various views; (5) That the need for this type of personal development and growth is with us constantly, regardless of our stage of seniority; (6) That through a program of projects useful to the profession and the community, AIC can build the basis of a public relations program enhancing the reputation and the status of the profession.

Meeting for Decision

For the luncheon meeting held on March 12th, the Washington Chapter provided its members with a list of subjects which might form the basis of activities for the Chapter, as follows:

Unionism

Licensing of Chemists and Chemical Engineers.

Education-Academic Curricula. Relationships with Schools.

Manpower Deficiencies.

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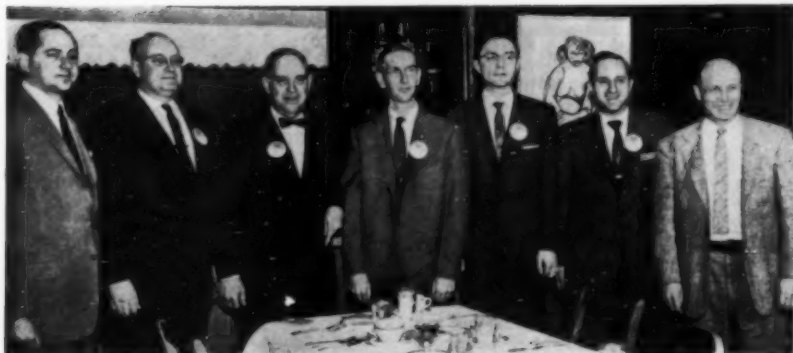
Guidance to Students and Young Chemists

Liaison with other Professional and
Technical Societies

Liaison with Civic Organizations
Awards

AIC Objectives

Members were asked to bring to the



NEW TWIN CITY CHAPTER OFFICERS

Left to Right: Joseph A. Abere, Hugh A. Hamilton, John H. Nair (AIC President), Albert C. Holler, Harold A. Johnson, Morris Kenigsberg, and John L. Wilson, (see below.)

meeting any additional subjects of interest. The Program Committee commented:

"The conclusions reached by your Program Committee after a season of intense analysis, and as amply expressed and supported at the February meeting, are that the AIC is a vital force for development of professionalism among chemists and chemical engineers themselves, and for promoting a greater recognition and appreciation of chemists and chemical engineers within society as a whole; that as a matter of self interest, the efforts and accomplishments of the local organization to date should be enlarged and become more enlightened to the problems facing chemists today; and that the group must find within itself the spark required to institute this growth. An active program, with everyone's participation in some particular phase, is believed to be the broad road toward the objective . . ."

Twin City Chapter

*Chairman, Albert C. Holler
Chairman-elect, Morris Kenigsberg
Secretary, Harold A. Johnson, 7433 Clinton Ave., So., Minneapolis 23, Minn.
Treasurer, Dr. Joseph F. Abere
National Council Representative,
Dr. John L. Wilson
Alternate Council Representative,
Hugh A. Hamilton*

First Meeting

The first meeting of the Twin City Chapter was held February 15, 1957, at the Criterian Restaurant in St. Paul, Minn. Twenty-two members and guests attended. The Charter of the Twin City Chapter was presented to the chairman, Albert C. Holler, by AIC President, John H. Nair.

President Nair spoke on the subject of "Attaining Professional Status." Newly elected members, Miss Rosemary Klinkenberg, W. W. Benton and L. H. Reyerson, were introduced.

The Charter Members of the Chapter are: Joseph F. Abere, Gordon C. Brown, Hugh A. Hamilton, Albert C. Holler, Harold A. Johnson, Goodwin Joss, Morris Kenigsberg, Sidney E. Miller, Richard E. Smith and John L. Wilson.

Will You Come

April 23, 1957. Washington Chapter. Dinner meeting. Windsor Park Hotel, 2300 Connecticut Ave., N.W. Presentation of Honor Scroll to Dr. Milton Harris, F.A.I.C., director of research, Gillette Co. Presentation of Scroll, AIC President John H. Nair. Speaker: Dr. Walter J. Murphy, Hon. AIC, the American Chemical Society. Cocktails 6:15 p.m., courtesy of Harris Research Laboratories. Dinner reservations (\$4.00): Dr. Carl J. Wessel, Na-

tional Research Council, 2101 Constitution Ave., Washington 25, D.C. Telephone: EXecutive 3-8100, Ext. 356. Make checks payable to Albert F. Parks, Treasurer.

May 3, 1957. New Jersey Chapter. Annual Honors Dinner and Meeting. Military Park Hotel, Newark, N.J. Cocktails, 6:00 p.m. Dinner 7:00 p.m. Meeting 8:00 p.m. The Chapter's Honor Scroll will be presented to H. W. Mackinney of the Bakelite Co., Leon R. Joslin of Standard Oil Co., and Chester A. Amick of American Cyanamid Co., for their work on the Cooperating Committee of the Chapter in connection with the new science building and facilities for the State Teachers' College at Montclair, N.J. Student medals will be presented to outstanding students of the area. Speaker: Dr. Detlev W. Bronk, president, National Academy of Sciences and Rockefeller Institute. For reservations: Dr. F. A. Lowenheim, Program Chairman, P.O. Box 471, Rahway, N.J. (FULTON 1-3000).

May 3, 1957. Chicago Chapter. Speaker, Dr. Henry B. Hass, president-elect of the AIC and president, The Sugar Research Foundation, New York, N.Y. For information, Miss Rose Brunetti, Armour Research Foundation, 10 West 35th St., Chicago 16, Illinois.

May 22, 1957. President's Reception to the AIC Officers, National Councilors, and the Annual Meeting Committee. 5:30 p.m. Sheraton-Mayflower Hotel, Akron, Ohio.

May 22, 1957. National AIC Council and Board of Directors. Dinner Meeting. Sheraton-Mayflower Hotel, Akron, Ohio.

May 23-24, 1957. Thirty-fourth Annual Meeting. THE AMERICAN INSTITUTE OF CHEMISTS. Sheraton-Mayflower Hotel, Akron, Ohio. (See page 118.)

June 6, 1957. New York Chapter. Dinner meeting. Hotel Commodore, New York, N.Y. Award of Honor Scroll to Dr. Clifford F. Rassweiler, F.A.I.C., vice chairman of the Board, Johns-Manville Corp., and president-elect of the American Chemical Society. Speakers to be announced. For reservations

(\$8.00): F. A. DeAngelis, Foster D. Snell, Inc., 29 W. 15th St., New York 11, N.Y.

April 10-11, 1958. Thirty-fifth Annual Meeting. THE AMERICAN INSTITUTE OF CHEMISTS. Los Angeles, California. Host: The Western AIC Chapter.

May 14-15, 1959. Thirty-sixth Annual Meeting. THE AMERICAN INSTITUTE OF CHEMISTS, New York, N. Y. Host: The New York and New Jersey Chapters.

For Record: Meetings in April

April 4, 1957. New York Chapter. Annual Young Chemists' Meeting. New York University. Theme: "How to be a Success in Chemistry." Speakers: Dr. Charles G. Overberger, F.A.I.C., head, Department of Chemistry, Polytechnic Institute of Brooklyn, "The Function of a Scientist in the Chemical Profession." Dr. Raymond W. McNamee, manager, Research Administration, Union Carbide & Carbon Corp., "Helpful Innate & Acquired Characteristics for Chemists."

April 9, 1957. AIC Breakfast. Held in connection with the American Chemical Society meeting in Miami, Florida. Place: Shore Club.

April 15, 1957. Twin City Chapter. Dinner. Criterion Restaurant, St. Paul, Minn. Speaker: Gregory Stone, Department of Sociology, University of Minnesota. Subject: "What Is a Professional Man?"



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Neurochemistry The Chemical Dynamics Of Brain and Nerve

Edited by R. A. C. Elliott, Irvine H. Page, J. H. Quastel. Charles C. Thomas, Publisher. 900 pp. \$19.50.

Dedicated to the memory of J. L. W. Thudichum, first scientist to publish a study on cerebral chemistry, this book was slated for publication in 1951, the fiftieth anniversary of his death. The manuscripts, which comprise the text, were nearly all received, therefore, at that time and any work done since in the various fields covered has not been recorded here. The editors believe, however, that the volume provides a fair guide to present knowledge and thinking on the subject.

Contributors from the United States, Canada, England, and Sweden have covered the many factors which must be

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taken into consideration in any study of the nervous system of man or insect: The chemical constituents of nerve, and brain; factors in influencing respiration and other metabolic phenomena; the effects of narcotics and convulsants, venoms and nerve poisons; the biochemistry of the brain during its earlier development; the composition and behavior of intracranial fluids; genetic and behavioral disorders; neuromuscular diseases, etc.

Obviously, a wide variety of investigators and students will find interesting material here and it is presented by authorities in their respective fields whether chemical or medical. Abundant references and both author and subject indices make the volume useful as well as usable.

—Dr. Frederick A. Hessel, F.A.I.C.

Organic Synthesis

Vol. 35. T. L. Cairns, editor, and Board. John Wiley & Sons, Inc. 122 pp. 6¼" x 9¼". \$3.75.

This volume which contains thirty-six satisfactory methods of preparation of organic compounds, continues an excellent series.

The Principles of Chemical Equilibrium

By Kenneth G. Denbigh. Cambridge University Press. N.Y. 5¼" x 8¼". 491 pp. \$7.50.

The author, at Edinburgh University, has prepared a thorough text book on chemical thermodynamics.

—Dr. John A. Steffens, F.A.I.C.

Chemical Trade Names And Commercial Synonyms

By Williams Haynes. D. Van Nostrand Co., Inc. 1955. 466 pp. \$8.00.

This is an extensive dictionary of common and trade names of commercial products, which is most useful.

Distillation in Practice

By Charles H. Nielsen. Reinhold Publishing Corp. 1956. 133 pp. \$3.00.

A concise and practical description of the construction and operation of industrial distilling equipment.

—Dr. John A. Steffens, F.A.I.C.

An Introductory Laboratory Course in Chemistry

By Howard L. Ritter. John Wiley & Sons, Inc. 1955 119 pp. \$2.50.

This laboratory notebook gives a rapid survey by way of introducing the student to the field.

Metallurgical Progress

By Dr. J. M. McLeod, Dr. D. D. Howat and Dr. H. B. Bell. Philosophical Library. 71 pp. \$6.00.

This book covers critical observations on ore preparation, electric steel production, and non-metallic inclusions.

Laboratory Outlines and Notebook for Organic Chemistry

By S. E. Boord, W. R. Brode, & R. G. Bossert. 3rd Edition. John Wiley & Sons, Inc. 314 pp. \$3.90.

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VEB Verlag Technik, Berlin W8: *Metallurgie des Aluminiums, Vol. I*, by A. L. Beljajew, M. B. Rapoport, and L. A. Firsanowa; 1956, 304 pp. (118 ill., 76 tables); DM 34.—Abundant Russian material concerning the electrolysis of cryolite-alumina charges, covering both theories and practical procedures, has been translated into German for the first time.

Bruno Wilkens Verlag, Hannover-Buchholz: *Medizinisches Woerterbuch*, by U. Kaps; 1956, 200 pp.; DM 6.80.—A valuable dictionary of medical terms for pharmaceutical chemists, pharmacists, laymen, etc.

Akademische Verlagsgesellschaft Geest & Portig, Leipzig Cl: *Chemie der zucker und Polysaccharide*, by F. Micheel; 2nd ed., 532 pp. (8 ill., 81 tables); DM 36.—An extensive survey of the chemistry of the mono-, oligo-, and poly-saccharides, cyclolites (polyoxycyclohexanes, e.g., inositol) and cycloloses (polyoxycyclohexanones, e.g., inososes), with additional chapters on labeled atoms and biochemistry of carbohydrates, and their occurrence, manufacture, and uses. There are also 62 tables with hundreds of references (82 pp.). • *Die Polarographie in der Medizin, Biochemie und Pharmazie*, by M. Brezina and P. Zuman; 1956, 800 pp. (337 ill.); DM 48.—An enlarged translation of the famous Czech book on polarography—the fundamentals of which were developed by the great Czech chemist J. Heyrovsky—with emphasis on its uses in medicine, biochemistry and pharmacy. Described are methods for the determination of ions,

oxygen, peroxides, redox systems, alkaloids, vitamins, hormones, proteins, enzymes, and other organic compounds; 72 pp. of tables form an appendix. The authors digested 2000 publications dealing with the subject matter (most of them cited) and request that 2 copies of biochemical-polarographic reprints (often not accessible to them) be sent to the Polarographic Institute of the Academy of Sciences at Praha, C S R.

Springer Verlag, Berlin W 35: *Mikrochemisches Praktikum*, by G. Gorbach; 1956, 123 pp.; paperbound DM 15.—The successor of the founders of the quantitative microchemistry—F. Emich, Nobelist F. Pregl, and J. Donau—at the University of Graz, Austria, has published this up-to-date laboratory textbook which describes equipment and proved qualitative, preparative, and quantitative microchemical methods.

Methuen & Co., London (John Wiley & Sons, N.Y.): *Introduction to Chemical Pharmacology*, by R. B. Barlow; 1955, 357 pp.; 35 s.—The most fascinating relationship between the structure of drugs and their action on the body—especially on central nervous system, peripheral nerve fibers, at synapses of motor nerves, and on such tissues and organs as blood vessels, intestines, uterus, and heart—is explained in a manner which is understandable also to those who had received no training in biology.

Elected: Joseph K. Roberts, F.A.I.C., as vice president in charge of research and development of Standard Oil Company (Indiana), Chicago 80, Ill. He was formerly general manager of the research and development department.

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Communications

Add Air Pollution Control Association

To the Editor:

In *THE CHEMIST* (Vol. XXXIV, No. 2,) Feb. 1957, page 64, there appears a short comment by Dr. John A. Steffens, F.A.I.C., entitled "Smog Control Needs More Chemists and Engineers."

I was quite interested to note that particularly in the last paragraph of this article several agencies were mentioned which had a specific interest in air pollution control activities. However, I saw no mention of this Association. If possible I would like to bring to Dr. Steffens' attention the existence of APCA, so that he may be able to extend his suggestions of helpful agencies to include the one agency that has as its only purpose, to further the knowledge and practice of air pollution control . . . I . . . enclose several pamphlets entitled "Cleaner Air" which will describe the activities of this association. . .

—Harry C. Ballman,
Executive Secretary
Air Pollution Control Association
Pittsburgh 13, Pa.

The AIC Objectives

To the Editor:

In the February, 1957, *CHEMIST*, on page 45, the article, "These are our Objectives," will answer quite a few questions now in the minds of the membership of the Ohio Chapter. If possible, please send to my attention 200 copies of these AIC Objectives."

—Dale F. Behney
Ohio AIC Chapter Secretary

Please Note

To the Secretary:

Your attention is invited to an error in reference to me on page 67 of the February issue of *THE CHEMIST* . . . I am not a Group Leader at the Saran Yarns Company, Odenton, Maryland, but I am instead Head of the Chemical Research Section . . .

—Dr. Robert M. Wagner, F.A.I.C.

For the Record

To the Secretary:

I note that in the list of candidates for councilors (*THE CHEMIST*, March 1957, page 82), my position is given as Research Chemist and that the address of my company is an obsolete address. Although it may be too late to do anything about it on the ballot, I should appreciate it if . . . you will make a note of my present title and correct box number.

—Dr. F. A. Lowenheim, F.A.I.C.
Technical Advisor
Metal & Thermit Corp.
P. O. Box 471, Rahway, N.J.

Secretary's Note:

It will assist us in keeping our records up-to-date, if AIC members will send in their changes of titles, positions, or addresses, as soon as they occur.

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